

The speed at which add-ons increase in number for the home micros is nothing short of an avalanche. It is quite possible, with a little cash, to expand your Commodore 64 to a CP/M machine and to unite your 48 Spectrums in to a micro orgy. Curtis Bollington wades through all the possibilities

Now you've got what you want, you want more. You've been using your micro for a while now, you may or may not have delved into and mastered the art of programming. You've bought all the latest games (yawn!) and become a super-games-wizard-galactic-time-lord, twice. But somewhere, for some reason, something is lacking. You may have a small business, but you cannot afford to lash out on one of those IBM things, you may be wondering whether your humble home micro can be stripped of its games titles and put to work to help rake in the brass.

We here at *PC Games* like our readers to have an easy life, so this month, as part of our Home Machine Supertest we're looking at the expansion capabilities of 13 of the most popular home micros on the market, giving you some idea of how you can expand your machine. The amount of expansion varies considerably from micro to micro; it's complicated further by the number of independent suppliers of add-ons for the more popular home micros. Of course it would be impossible to list every add-on which is available for



The snow effect



ball

every popular home micro, although we'll mention one or two of the most popular ones.

Most manufacturers have a range of peripherals with their own label on it. This doesn't mean that it's the best one for that machine, you may find better and cheaper elsewhere by scouring the ads in *PC Games* for example.

A surprising number of computers can be upgraded to run CP/M, the operating system which enables your computer to run a wide range of business software. There are powerful word processors, financial spreadsheets, databases, and so on. In some cases you'll need to buy a second processor and extra memory before you can run these programs. Be warned, business software is a different league, gone are the \$15 programs — you could find yourself paying around \$600 for a software package.

Before you dash out and buy all the latest add-ons, look around at what you are trying to do, then find a software package that will perform those tasks, you may find you can get by on a single disk drive, a \$50 word processor package and a \$50 payroll package which will cope with about 20 staff.

Specifics

The Atari 800XL has no memory expansion although the 600XL can be expanded up to 64k. Atari have several peripherals for its machines. A disk drive is available which costs \$499 for a 127k drive; it isn't possible to connect a second drive. There are two printers available bearing the Atari label, a printer/plotter which costs \$159.95 and a letter quality printer costing \$499.95. Atari does supply their own joysticks, but there are far better ones on the market. If you're thinking of using your Atari for business, think more of home business. Atari Writer is a word processing package costing \$99.95 and there's a version of VisiCalc for \$99.95. Expansion beyond this isn't available from Atari at present, but there are some mutterings about CP/M being vaguely possible in the future.

There is a disk drive available for the Sharp MZ700, a 204k single drive for \$699. There are four word processors and four spreadsheets around for the Sharp, prices are approximately \$40. A tractor/friction printer for the Sharp is available for \$795.

There are two memory options for the Spectravideo, 16k can be added for \$99 or 64k for \$249. Spectravideo's 80 column printer is \$549 and a green screen hi-res monitor is \$199, although you may be able to pick up a cheaper monitor from

an independent supplier. Spectravideo is something of a hot shot with joysticks.

The 'Quickshot' is one you may have seen in your local computer store, this retails at \$19.99, there is also a version at \$24.99. Disk-drives for the Spectravideo are comparatively expensive, a single 170k unit costs \$999, the twin disk version has a capacity of 340k and costs \$1399. CP/M is included with the disk drives but you will need an 80 column card which is a further \$199.

The Sord M5 isn't a machine that you could ever want to use for a business, nevertheless there are a couple of business packages around for it. 'Falc' is a financial spreadsheet and there's a database which is based on Sord's 'Pips'. You can connect the M5 to a monitor, although Sord doesn't have its own. Disk drives are not available in Australia.

A modem is available from an independent manufacturer which will connect the M5's RS232 socket.

Add-ons for the VZ-200 are not so big. Memory can be upgraded from 8k to 24k for \$79. There are no disk drives available for it which greatly hinders its capacity for small business use.

The software available for it does include a word processor priced at \$29.95 and a Mailing List program priced at the normal VZ-200 software price of \$12.50. Dick Smith have their own printer/plotter for the VZ-200 which costs \$169 or alternatively any Centronics printer with an RS232 interface will work.

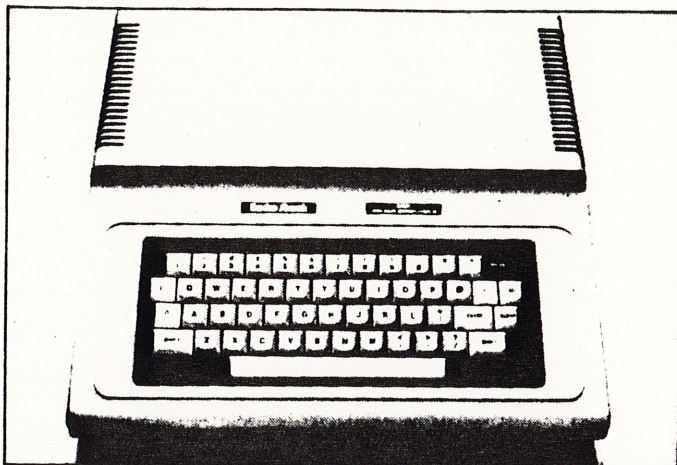
The number of potential configurations for the Dick Smith CAT is quite large. The CAT has 64k memory which can be expanded to 256k. Dick Smith have their own printer which costs \$449, or any Centronics printer.

There is a range of monitors to choose from with prices ranging from \$250 to \$800. A Z80 cartridge with a CP/M disk is available for \$395. Software available for the CAT is: VisiCalc \$428, Sandy word processor \$189 and Cat PFS \$175.

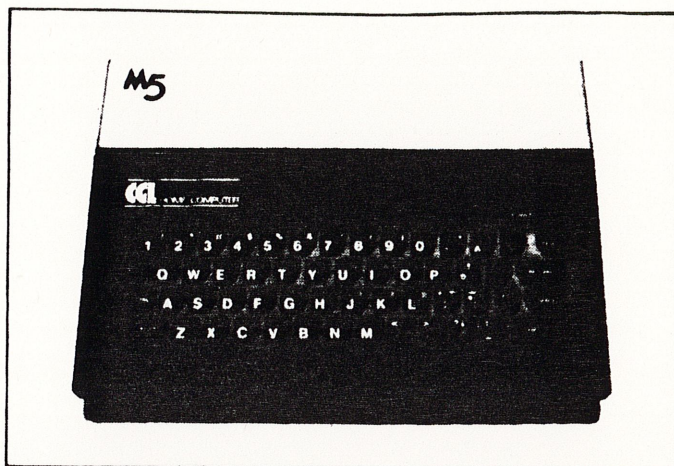
CP/M expansion on the Commodore 64 is remarkably cheap, a cartridge costs \$80. Commodore doesn't produce any memory expansion for the 64, which would make running many CP/M programs very difficult. There is a good range of business software available for the Commodore 64: Easyfile, Easyscript, Superbase 64 and The Manager. They are not particularly cheap though. A single disk drive of 170k capacity is available costing \$499.

The VIC 20 and the 64 share many of the same peripherals. There is a range of printers available. The range starts with the model 801, a tractor feed only dot matrix printer costing \$399. The 802

HOME MICRO SUPERTEST



Tandy



CGL M5

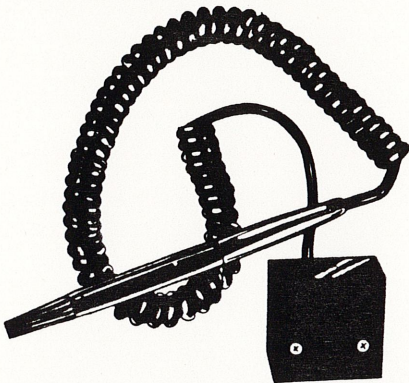
At a glance guide to add-ons for the top thirteen micros

Make	Memory	Disk drives	Printer	Monitor	Modem	Networking	Joystick	Business system expansion	Software	Others
Acorn Electron	32k RAM 32k ROM Interchangeable ROM memory	100k single £366 400k single £612	Independent	12" mono \$241.90 14" colour \$516.00	Independent	—	With interface	Compatible with BBC business software only in disk form	View \$150 View Sheet \$150 Spreadsheet & WP soon avail. in ROM	504kb hard disk 108kb hard disk
Atari	Up to 64k max.	127k — 1 only — \$499	Printer/plotter \$159.95 LO printer \$499.95	Independent	Independent	—	Own, but will take any with standard i/face	—	Atari Writer \$99.95 VisiCalc \$99.95	—
Commodore VIC 20	Up to 16k max. \$99.00	170k — single — \$499	801 \$399 802 \$499 1101 \$749	14" colour \$499	Independent	Up to 8	Own \$12.00	—	SimpleCalc \$49.95 VIC File \$99.95 Pers. Finance \$39	—
Commodore 64	No options	170k — single — \$499	As VIC 20	14" colour \$499	As VIC 20	Up to 8	Own \$12.00	CP/M Expansion cartridge \$80	Easy Script \$100 Easy File \$80 Superbase 64 \$180 The Manager \$80	—
Disk Smith CAT	64k expandable to 192k	195k — single — \$348	Own \$449 — Any Centronics	Mono \$249 Colour \$399 Col Hi-Res RGB \$599 Switchable \$795	Own \$199.00	—	Own \$34.50 pair	280 cartridge with CP/M disk \$365.00	VisiCalc \$428 Bundy \$180 Cat PPS \$175	—
Memotech MTX	32k \$129 64k \$199 128k \$379	500k — single — \$999 2nd drive — \$599 5 Mbyte hard 10 Mbyte hard	Own dot matrix 80 column \$699 Any Centronics	Independent	RS232 package incl. Comms board \$149	Oxford node ring system. Up to 255 terminals \$129	Independent (Atari type)	CP/M available \$559	Pascal \$149 New Word \$189	—
MicroBee	Up to 32k \$174	128k — single — \$1285 twin \$1595	Parallel	Own green \$149.50 Own Amber \$159.50 Soon to be released colour	Own \$169	Starmat Bosmat 1 Up to 16 terminals	Independent	CP/M 128k \$1,995	Database \$12.50 Spreadsheet \$12.50	—
Sharp MZ700	64k max.	204k — single — \$899	Tractor/friction — \$795	Independent	—	—	Own \$30 takes 2	—	4 word processors \$40	—
Sinclair Spectrum	48k version	86k Microdrive & Interface \$149	Own thermal \$169	Independent	Independent	With interface cable	Atari type with interface	—	Word processors & spreadsheet are available	—
Sord	No option	Only cassette	Any Centronics	Independent	Independent	—	Own included	—	Falc (spreadsheet) database-based on 'PFS'	—
Spectravideo	16k \$99.00 64k \$249	170k — single — \$999 340k — twin — \$1399	80 column matrix \$549	Green screen \$199	Own \$249	—	Own Quickshot \$19.99 \$34.99	CP/M int. with disk. 80 col. and needed	Disk Basic int. in disk price	80 column card \$199 Graphics tablet \$179 RS232 \$199
Tandy Color	64k \$185	184k — single — \$599 2nd drive — \$499 Up to 4 drives	Any serial RS232	Independent	—	—	Own \$29.95 pair	OS.9 \$99.95	WP Disk \$79.95 WP ROM \$49.95	—
VE-200	Up to 24k \$79.00	—	Own Any Centronics with RS232 Interface \$169.00	Own Colour \$389	—	—	Own \$39.50 pair	—	Word processor \$29.95 Mailing List \$12.00	—

model is a track or form feed 'letter quality' dot matrix printer priced at \$499. The letter quality daisywheel (model 1101) is priced at \$749.

The Memotech is quite something else when it comes to expansion. There is, or will be, a complete range of peripherals available ranging from three different options of memory expansion to a complete networking system allowing as many as 255 Memotechs to be used as terminals from one main terminal.

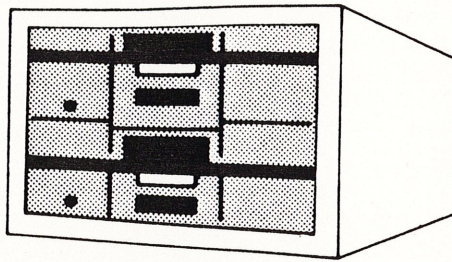
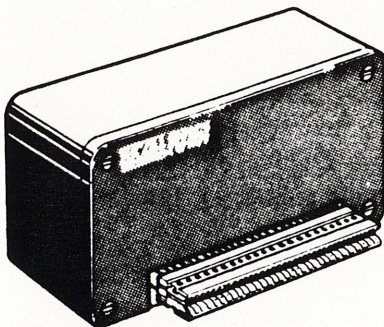
The Memotech is sold in various configurations including a CP/M system consisting of twin disks, a monitor, a printer and CP/M for \$2149. Of course, all the extras can be bought separately. This CP/M system isn't the limit, if you have the money you can invest in a 10 Megabyte hard disk system, or even up to a 20 Mbyte system.



The Acorn Election comes standard with 32k RAM and 32k ROM. The ROM memory is interchangeable, and a spreadsheet and word processing will soon be available in ROM.

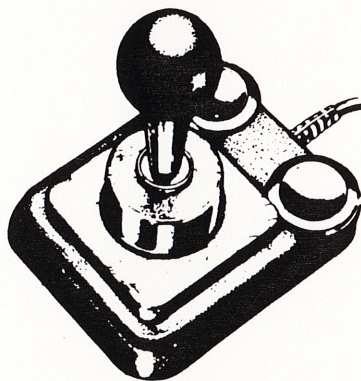
Disk drives are available and are essential if you want to use the BBC Model B business software. So if you want to use the business software be prepared to pay out at least \$356.

Tandy has a large range of peripherals so the Color Computer isn't short of addons. 64k of memory will cost you \$185, a

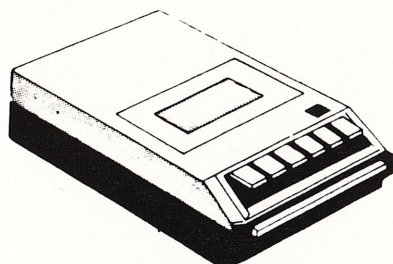


184k disk drive costs \$599 and up to four drives can be added. Any printer with an RS232 interface can be used, Tandy has a range under its Tandy Radio Shack label.

The Color Computer can't be used with a monitor, only a TV. The OS-9 operating system is available for the Tandy. The software available at present are Basic and 'C'. A word processing package is available for the standard machine on either disk or ROM. The disk version costs \$79.95, the ROM version \$49.95.

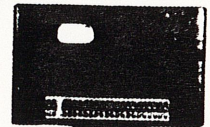


The Spectrum uses its own ZX printer. There are two interfaces available, appropriately called Interface 1 and Interface 2. Interface 2 allows joysticks and cartridges to be used and Interface 1 is supplied with Sinclair Microdrives, which are small, fast running tape cassettes each of which hold 85k. Up to eight Microdrives can be linked together. It's



possible to expand your 16k Spectrum, but this will have to be done independently. There are many joysticks on the market for the Spectrum, it's also now possible to connect your Spectrum up to a proper disk drive. The awful rubber keyboard can also go out the window as there are some beautiful examples to replace it with which turn the Spectrum into a completely different machine. Not only does this make the machine look better, it also allows it to be used for slightly more serious applications such as word processing.

To upgrade the MicroBee to 32k costs \$174. A single disk drive with 128k is priced at \$1295 while the twin disk drive costs \$1595.



Applied Technology's green screen monitor costs \$149.50, while the amber screen monitor, also available, costs \$159.50. Soon to be released by Applied Technology is a colour monitor, but as yet no price has been announced.

Networking is available with up to 16 terminals. The facility to upgrade to CP/M costs \$1995 and bundled with this comes WordStar, MailMerge, Microsoft Basic, CP/M Icon Display and Multiplan.

For those not upgrading to CP/M there are database and spreadsheet programs available for \$12.50 each.

The table lists most of the peripherals available from the manufacturers of the micros, it will give an indication of the extras available for the machine you own, or would like to own.

